Southern Forest Pest Reporter

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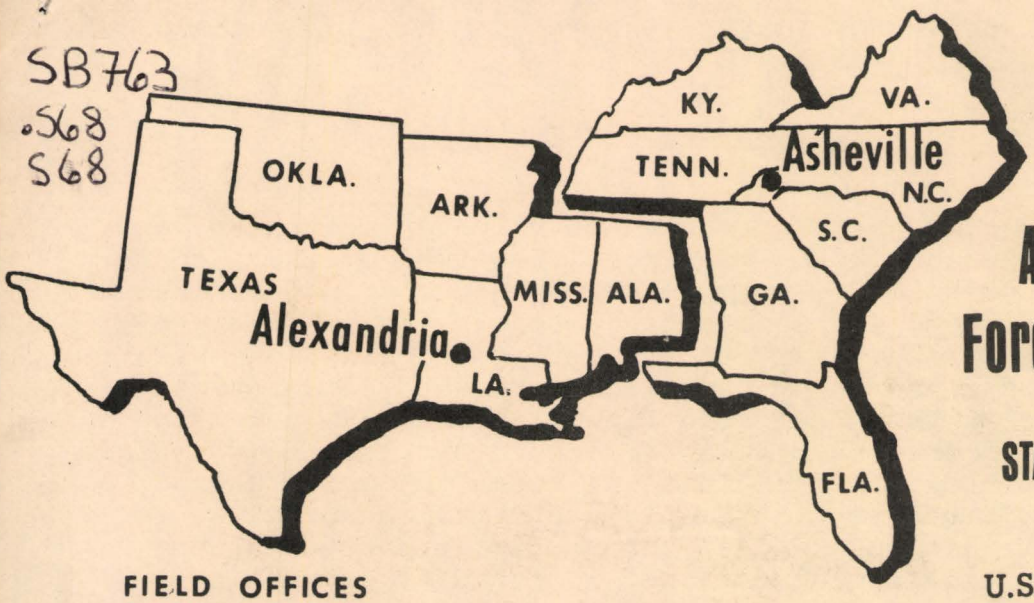

FIELD OFFICES
Asheville, N.C.-Alexandria, La.

ENVIRONMENTAL PROTECTION AND IMPROVEMENT

Forest Pest Management

Southeastern Area
STATE AND PRIVATE FORESTRY

FOREST SERVICE
U.S. DEPT OF AGRICULTURE

April, 1972

1720 PEACHTREE ST. N.W. ATLANTA GA. 30309

SUMMARY OF CONDITIONS

. . . The Southeastern Area is experiencing a dramatic southern pine beetle population explosion. It has reached serious outbreak proportions in parts of Louisiana, Mississippi, Alabama, South Carolina, and Georgia. Infestations are also increasing in Texas, Arkansas, North Carolina, and Virginia. (See attached map)

. . . Attached is a copy of the southern pine beetle suppression procedures currently recommended by the Forest Service. These procedures have been demonstrated by Research and Forest Pest Management to be the most effective alternatives available.

. . . The black turpentine beetle and Ips engraver beetle have been relatively inactive over the past several months.

. . . Large populations of the tip moth emerged from shortleaf pine in the Stuart, Louisiana seed orchard.

. . . Cylindrocladium root rot destroyed over 75 percent of the 1-0 black walnut seedlings at a North Carolina nursery.

. . . Lophodermium needle cast caused severe damage to Scotch pine Christmas tree plantations in South Carolina.

. . . Statewide fusiform rust surveys have been completed in South Carolina, Georgia, and Arkansas. Surveys are currently in progress in Mississippi and North Carolina.

STATUS OF FOREST INSECTS

SOUTHERN PINE BEETLE, *Dendroctonus frontalis* Zimm.

ALABAMA

Population levels are increasing on private land in Lee and Clark Counties according to reports received by the Alabama Forestry Commission. Approximately 5 M bd. ft. of infested material is being salvaged daily. Infestations have been also reported in several other counties. Evaluations will be conducted in March by the Alabama Forestry Commission and the Forest Pest Management Group in order to determine the status of the insect. A fall evaluation on the Oakmulgee District of the Talladega National Forest showed a sharp increase in southern pine beetle activity. Outbreak populations were observed in the northwest portion of the district. Large spots contained infested trees with over 300 insects per square foot of bark surface. Widespread multiple tree infestations have also been reported on the Shoal Creek and Talladega Districts of the Talladega National Forest. A survey by the Forest Pest Management Group will be conducted during March to evaluate these infestations.

ARKANSAS

In recent years, the southern pine beetle has remained at a low level in south Arkansas. Annual detection surveys by Forest Pest Management have revealed very little activity. During February, 1972, the Arkansas Forestry Commission reported that populations were definitely increasing in Ashley County and on the Crossett Experimental Forest. A survey is underway to delineate the outbreak area and evaluate the beetle population.

GEORGIA

Approximately 22 counties in north-central Georgia have substantial numbers of bark beetle killed trees; individual spots ranged in size from one to 1,000 trees. The Forest Pest Management Group, Asheville Office, is cooperating with the Georgia Forestry Commission in making a biological evaluation of the beetle outbreak on private lands in the affected counties.

Evaluations have been completed on Federal lands within the outbreak area which indicate generally high beetle populations. An estimated 3,584 infested pines are present on the Uncle Remus Ranger District of the Oconee National Forest. The Hitchiti Experimental Forest and Piedmont Wildlife Refuge are reported to have 1,849 and 630 infested trees, respectively. In north-eastern Georgia, a total of 4,360 infested trees

GEORGIA (Cont'd)

were detected on the Chattooga and Tallulah Ranger Districts (Chattahoochee National Forest). Brood densities were high. Volume of currently infested material was estimated at 772 MBF for the Tallulah Ranger District and 90 MBF for the Chattooga Ranger District.

LOUISIANA

Currently, a dramatic population explosion of southern pine beetle is occurring in 11 parishes from Lake Charles to Monroe. Activity is also increasing northeast of Baton Rouge. Included in this outbreak area are five districts of the Kisatchie National Forest. This is the worst recorded outbreak in Louisiana since 1910-11, and is believed to be below its potential. Under conditions favorable for beetle development losses could become even more serious this spring. A cooperative survey by the Louisiana Forestry Commission and the Forest Pest Management Group revealed brood densities of 379 insects per square foot of bark surface in several large infestations. Approximately 65 percent of the infested timber was still green.

Ten million board feet of infested timber has been salvaged to date with an additional 10 MM bd. ft. left unsalvaged because of unfavorable logging conditions. The Louisiana Forestry Commission and the U. S. Forest Service are currently making aerial surveys of the outbreak area. When infestations are located the landowner is notified and informed of the proper control measures. An intensive news release program has been initiated to inform the public of the outbreak.

It has been stressed that immediate salvage of active infestations will be successful only if there is complete cooperation between landowners and timber processing plants.

MISSISSIPPI

Increased activity has been detected on private land in southwest Mississippi. The extent of this late season outbreak has not yet been determined. Beetle activity on the Homochitto National Forest is also increasing. Surveys revealed many multiple tree spots. Brood densities were 425-500 insects per square foot of bark surface. There was also a high percentage of infested green trees compared to red tops and faders. With continued favorable conditions for beetle development and without intensive suppression measures, widespread tree killing could occur in this area.

NORTH CAROLINA

The southern pine beetle was also very active in North Carolina. The 44,600 acre Cherokee Indian Reservation had 1,820 infested trees and an average of 608 beetles per square foot of bark surface. At this level, the beetle presents a

NORTH CAROLINA (Cont'd)

very serious threat to the Reservation's remaining pine timber.

An extremely high infestation level (596 ± 562 infested trees per 1,000 acres of host type) was detected on the Tusquitee Ranger District, Nantahala National Forest. The District is removing infested trees by commercial timber sales as quickly as possible.

A survey of the Uwharrie National Forest conducted in early January by the Forest Pest Management Group detected 2,100 actively infested trees on the 220,000 acre area with broods averaging 275 beetles per square foot of bark surface. This represents a loss of an estimated 200 MBF of shortleaf pine and has spurred an active salvage program to reduce future losses.

SOUTH CAROLINA

In early February an aerial sketchmap survey was conducted in 16 piedmont counties by the South Carolina State Commission of Forestry. Coverage ranged from 25-50%. The survey was initiated to evaluate an upsurge in southern pine beetle activity which was indicated by a sketchmap survey in October, 1971, and to locate new spots for salvage operations. Although data from this survey have not yet been evaluated, it is anticipated that the potential exists in the area for heavy losses during the summer. Approximately 400 spots were recorded on a 52,000 acre area involving three northern piedmont counties and two state parks. (South Carolina Commission of Forestry)

Forest Pest Management (Asheville Office) personnel found substantial southern pine beetle populations in portions of both the Sumter and Francis Marion National Forests.

On the Sumter National Forest, the Enoree Division had scattered infestations with an estimated 30 ± 28 infested trees per 1,000 acres of host type and an average brood density of 206 beetles per square foot of bark surface. Surveys of the Andrew Pickens Ranger District estimate the number of beetle infested trees at 118 ± 83 per 1,000 acres of host type with brood densities of 331 beetles per square foot of bark surface.

With weather conditions continuing to favor the beetle, the only hope for minimizing the timber losses in these areas during the coming season is an aggressive salvage program.

Data from a February sketchmap survey of the Francis Marion National Forest estimates that 7,046 actively infested trees are present on the 414,700 acres within the Forest's purchase

SOUTH CAROLINA (Cont'd)

boundary. With brood densities averaging 386 beetles per square foot of bark surface there is a high potential for increased damage during the coming spring and summer months.

TENNESSEE

An evaluation of southern pine beetle infestations was conducted on 37,440 acres of the Great Smoky Mountains National Park during September, 1971. The survey areas were located along the north shore of Fontana Lake and in the Fighting Creek area near Gatlinburg, Tennessee. Results of the evaluation showed very little beetle activity along Fontana Lake (2.5 infested trees per M acres of host type) but a very high level of activity in the Fighting Creek area (1281 $\pm$ 1182 infested trees per M acres of host type).

Survey results on the Tellico Ranger District of the Cherokee National Forest in eastern Tennessee indicate a moderately high level of infestation with 182 $\pm$ 167 infested trees per M acres of host type within the 80,000 acre survey area on the eastern portion of the District. Salvage efforts by District personnel will have to be intensified to reduce losses.

TEXAS

Populations of the southern pine beetle were moderate to low on private and National Forest land throughout the summer and early fall of 1971. However, in late fall, there was a definite increase in activity in Texas Forest Service Districts 4, 5, 6 and on the Sam Houston and Sabine National Forests. There has been some difficulty in salvaging infested trees because of wet weather. A significant increase in activity is expected this spring.

VIRGINIA

A potential serious southern pine beetle infestation on the Prince Edward State Forest (Prince Edward County) continued into the late fall. Active infestations were also reported in Isle of Wright, King William and Henrico Counties in the coastal plain region of the state and in Lunenburg and Halifax Counties in the Piedmont.

The southern pine beetle population on the Delmarva Peninsula is down somewhat, but a recent re-examination of some old spots (August, 1971) revealed evidence of a residual population in apparently old dead trees in the area. These trees, which looked like old snags from the air, were evidently not as old as they appeared. The strong winds common in this region apparently have blown the needles off of the dying pines soon after they turned red making many of the actively infested trees difficult to detect from the air. (Virginia Division of Forestry)

VIRGINIA (Cont'd)

The southern pine beetle continued to plague the Richmond National Battlefield Park in eastern Virginia. Six out of 11 spots checked by the Forest Pest Management Group this fall had actively infested trees.

BLACK TURPENTINE BEETLE, Dendroctonus terebrans (Oliv.)

ARKANSAS

No heavy activity reported. Some small salvage sales are being made in the Amity area. Damage was reported serious along logging access roads in the Camden area. New activity was reported from the Wickes, Gurdon, Springhill, and Huttig areas. (Arkansas Forest Pest Reporter)

SOUTH CAROLINA

The black turpentine beetle outbreak which began in the summer of 1970 on the Sand Hills State Forest and Cheraw State Park has apparently subsided.

Aerial and ground surveys in June, 1971 revealed only scattered spots containing 1-5 trees, most of which were inactive. Intensive salvage operations conducted from August, 1970 through May, 1971 by South Carolina Forestry Commission personnel, coupled with high parasite and predator activity during the winter months, are cited as the primary factors in bringing the outbreak under control.

A total of 7,600 cords of pulpwood and 235,000 board feet of sawtimber were salvaged. This represents a stumpage value of $57,000 and some 109,000 trees on a 99,000 acre area.

TEXAS

Black turpentine beetle activity has been at a low level probably due to cooler temperatures. Logging operation damage contributed to attack by this beetle. (Forest Pest Activity Report, Texas Forest Service)

IPS ENGRAVER BEETLES, Ips sp.

ARKANSAS

The majority of infestations involved only a few trees. No activity was reported from the Wickes, Gurdon, Glenwood, Springhill, Oden, and Amity areas. (Arkansas Forest Pest Report)

NORTH CAROLINA

A survey by Forest Pest Management personnel (Asheville Office) revealed minor activity of Ips sp. on the Croatan National Forest (approximately 12 single and 8 multiple tree spots). There was also some killing of shortleaf and loblolly pines in Richmond and Lincoln Counties reported by the North Carolina Forest Service.

IPS ENGRAVER BEETLES (Cont'd)

TEXAS — Texas Forest Service, Districts 1, 2, 3, 6, and 7 have reported damage by these bark beetles. Damage was considered slight in comparison with other months. (Forest Pest Activity Report, Texas Forest Service)

PINE SAWFLIES, *Neodiprion* sp.

ARKANSAS — The Jasper area reported high populations on several ornamentals. A small infestation has been observed near Benton, Arkansas. (Arkansas Forest Pest Report)

MISSISSIPPI — Light populations of an unknown species of sawfly were observed feeding on longleaf and shortleaf pines at the Erambert Seed Orchard in early February. Specimens are being reared for identification.

VIRGINIA — Surveys for eggs of the Virginia pine sawfly, *Neodiprion pratti pratti* Dyar. indicate a moderate to high population in the Fredericksburg area and west of Washington, D. C. in Arlington, Virginia. (Virginia Division of Forestry)

PALES WEEVIL, *Hylobius pales* (Hbst.)

NORTH CAROLINA — A field experiment to test the effectiveness of Dursban^{R} and carbofuran for pales weevil control is being conducted jointly by the Southeastern Forest Experiment Station and SA, S&PF, Forest Pest Management Group. The test was established on lands owned by Federal Paper Board Company in the Green Swamp of North Carolina. Several new types of formulations of each chemical are being tested.

HARDWOOD DEFOLIATORS

VARIABLE OAK LEAF CATERPILLAR, *Heterocampa manteo*

ARKANSAS — Substantial defoliation in the Little Rock, Yellville, Pine Bluff, Hardy, and Dallas County, Calhoun County, Pike County, and Lead Hills area was reported. For the Amity area, this was the worst year ever reported for this pest. (Arkansas Forest Pest Report)

TEXAS — Many species of oak were defoliated this fall. No serious damage occurred because the defoliation coincided with natural leaf loss. (Forest Pest Activity Report, Texas Forest Service)

OAK LEAF TIER, Croesia albicomana

VIRGINIA — A winter egg mass survey for eggs of the oak leaf tier revealed the population to be approximately the same as last year, i.e., extending from southwestern Alleghany County through western Bath County into southern Highland County. The roadside survey which covered all the western counties found no evidence of forest tent caterpillar or fall cankerworm populations. (Virginia Division of Forestry)

GYPSY MOTH, Porthetria dispar (L.)

VIRGINIA — The Virginia Division of Forestry plans to spend six weeks in New Jersey this summer collecting parasites of the gypsy moth. They plan to concentrate on those species of parasites having native alternate hosts. However, they are also conducting tests to determine whether the pine looper and eastern tent caterpillar are suitable alternate hosts for some introduced parasites. (Virginia Division of Forestry)

MISCELLANEOUS INSECTS

BALSAM WOOLLY APHID, Adelges picea

NORTH CAROLINA — The balsam woolly aphid increased to damaging levels in the protection zone and in the Fraser fir seed production area on Roan Mountain, North Carolina during 1971. Efforts to control the aphid in these areas are expect to get underway this spring.

PINE LOOPER, Lambdina anthasaria pelluscidaria (Grote and Robinson)

VIRGINIA — Concurrently with the Virginia pine sawfly survey, the Virginia Division of Forestry checked for pupae of the pine looper. Results of the survey indicate a moderate population

VIRGINIA (Cont'd) is present in King and Queen Counties. Past experience with this sampling technique, however, has shown that it often over estimates the population.

A check for parasites revealed that 12% of the pupae were parasitized and 40% failed to emerge for unknown reasons. (Virginia Division of Forestry)

SEED ORCHARD INSECTS

LOUISIANA At the Stuart Seed Orchard, large populations of adult tip moths were emerging from shortleaf pine on February 15. One to four adult moths were observed flying as each tree was approached. Dimethoate sprays are being delayed until the eggs hatch.

MISSISSIPPI Light populations of tip moth had emerged on loblolly and shortleaf pine at the Erambert Seed Orchard on February 16. Only an occasional adult moth was observed. This population, however, together with populations outside the orchard, is considered high enough for a buildup later in the season.

STATUS OF FOREST DISEASES

NURSERY AND SEED ORCHARD DISEASES

CYLINDROCLADIUM ROOT ROT caused by Cylindrocladium sp.

NORTH CAROLINA Over 75% of the 1971 black walnut (1-0) and seedling crop (75,000 seedlings) was eventually destroyed as a result of serious widespread root rot infection on the Griffith State Nursery. The fungus, Cylindrocladium scoparium was repeatedly isolated from diseased black walnut roots and soil collected from around the roots during the spring and summer of 1971. Disease symptoms became more pronounced later in the growing season (September and October).

KENTUCKY Cylindrocladium scoparium was isolated from diseased 1-0 black walnut roots and rhizosphere soil samples collected in October, 1971 from the Morgan County State Nursery in eastern Kentucky. The damage was relatively localized but involved several thousand seedlings in several seedbeds. The disease symptom pattern (root rot and discoloration) was the same as previously observed at the Griffith State Nursery in North Carolina.

OKLAHOMA — Phomopsis blight of eastern red cedar was observed in a nursery in Oklahoma. Spraying for prevention of the disease was stopped in late September to early October and the symptoms began to appear in November.

MISSISSIPPI — Black root rot was observed on loblolly pine at the Ashe Nursery in Mississippi. Damage was slight and mostly restricted to that portion of the root system that developed below the plow line.

PINE FOLIAGE DISEASE

TENNESSEE — Approximately 50% of three million (1.5 million each of 2-0 and 3-0) white pine seedlings were culled and destroyed as a result of severe needle damage at the Pinson State Nursery in western Tennessee in 1971. Foliage symptoms consisted of severe browning and some casting of the second-year needles. Symptoms became more pronounced just prior to scheduled lifting time in November. The imperfect fungus fruiting stage of Lophodermium pinastri was observed on a few isolated needle samples collected in August. The imperfect fungus fruiting stage Lecanosticita of the brown spot fungus (Scirrhia acicola) was isolated from diseased needle samples collected in November, 1971. Either one or both of these two foliage fungi could be causing at least some of the damage observed. Additional studies are planned with the Tennessee Division of Forestry to confirm and evaluate the causal agent, disease incidence and damage, and control possibilities. Meanwhile, the fungicide Maneb has been recommended as a protective spray treatment for next year's white pine seedling crop in an effort to prevent further disease losses.

CHRISTMAS TREE PLANTING

LOPHODERMIUM NEEDLE CAST caused by Lophodermium pinastri

SOUTH CAROLINA — Lophodermium needle cast was observed causing severe damage to five and six-year-old Scotch pine Christmas trees in Saluda County, South Carolina in December, 1971. Disease symptoms observed included pronounced needle discoloration and casting which rendered the trees unmerchantable for Christmas trees. Fruiting bodies of L. pinastri were very

SOUTH CAROLINA (Cont'd)

conspicuous and abundant on dead and dying attached needles. Three varieties of Scotch pine were infected but the French variety was the most severely damaged. This is in contrast to previous needle cast damage observed in forest tree nurseries where the Spanish variety Scotch pine has characteristically been the most susceptible and damaged variety.

WHITE PINE BLISTER RUST caused by Cronartium ribicola

VIRGINIA

Surveys for blister rust infected trees are planned this spring in the Mount Rogers area to determine whether or not an eradication program will be necessary. Early reports indicate rust infection may be approaching unacceptable levels in this area. (Virginia Division of Forestry)

ANNOSUS ROOT ROT caused by Fomes annosus Cke.

LOUISIANA

Numerous Fomes annosus infection centers, with associated windthrow and mortality, were observed in four slash pine plantations belonging to the Boise Southern Corporation. All of the areas were thinned prior to 1968 by removing every fourth row. The plantations were located on deep, sandy soils formerly occupied by natural stands of longleaf pine.

SOUTH CAROLINA

Heavy Fomes annosus infection has become readily apparent in thinned pine plantations on the Savannah River Project near Aiken, South Carolina. Infection levels in some plantations are such that sawtimber management had to be abandoned in favor of pulp wood rotations. The problem is so severe that the forest management plan for the entire project is being revised.

FUSIFORM RUST caused by Cronartium fusiforme (Hedge) Hunt

SOUTH CAROLINA

A statewide fusiform rust survey was completed in South Carolina in late summer of 1971. Infection rates for loblolly pine ranged from a low of one percent in the upper Piedmont to a high of 95 percent in the northern coastal plain. Infection rates for slash pine in the coastal plain and sand hills sections ranged from 16% to 93%. Where the two

SOUTH CAROLINA (Cont'd)

species occurred in the same general area slash pine was usually more heavily infected. Infection rates above 50 percent for both species are common in three-fourths of the state, the low rates occur in the upper Piedmont but an occasional stand with a low infection rate was observed in other areas of the state. The largest general area of rates above 75% was in slash pine in the southern coastal plain. (South Carolina Commission of Forestry)

MISCELLANEOUS DISEASES

UNKNOWN DISEASE OF DOGWOOD

NORTH CAROLINA

An as yet unidentified organism is causing a serious canker disease of dogwood in the mountains of North Carolina. The first symptoms of the disease are a sloughing off and cracking of the bark on the lower trunk of infected trees very similar to damage caused by sun scald. The disease progresses up the tree to the branches evetually killing it. These symptoms have been observed on both white and pink dogwood. One mountain nursery lost 75% of its dogwood crop to this disease for which there is no known cure. (North Carolina Forest Service)

PITCH CANKER caused by Fusarium lateritium f. pini

NORTH CAROLINA

Pitch canker has been observed causing damage to shortleaf pine in Stanley County. (North Carolina Forest Service)

ICE DAMAGE

KENTUCKY

An ice storm caused scattered damage to loblolly and Virginia pine over 16,000 acres in the Pennyrile State Forest in Kentucky.

ENVIRONMENTAL POLLUTION

NEEDLE TIP BURN

NORTH CAROLINA

White pines in Burke, McDowell, Avery and Watauga counties have been showing signs of tip burn. (North Carolina Forest Service)

NORTH CAROLINA	Damage is again showing up on white pines in Henderson and Buncombe Counties. (North Carolina Forest Service)

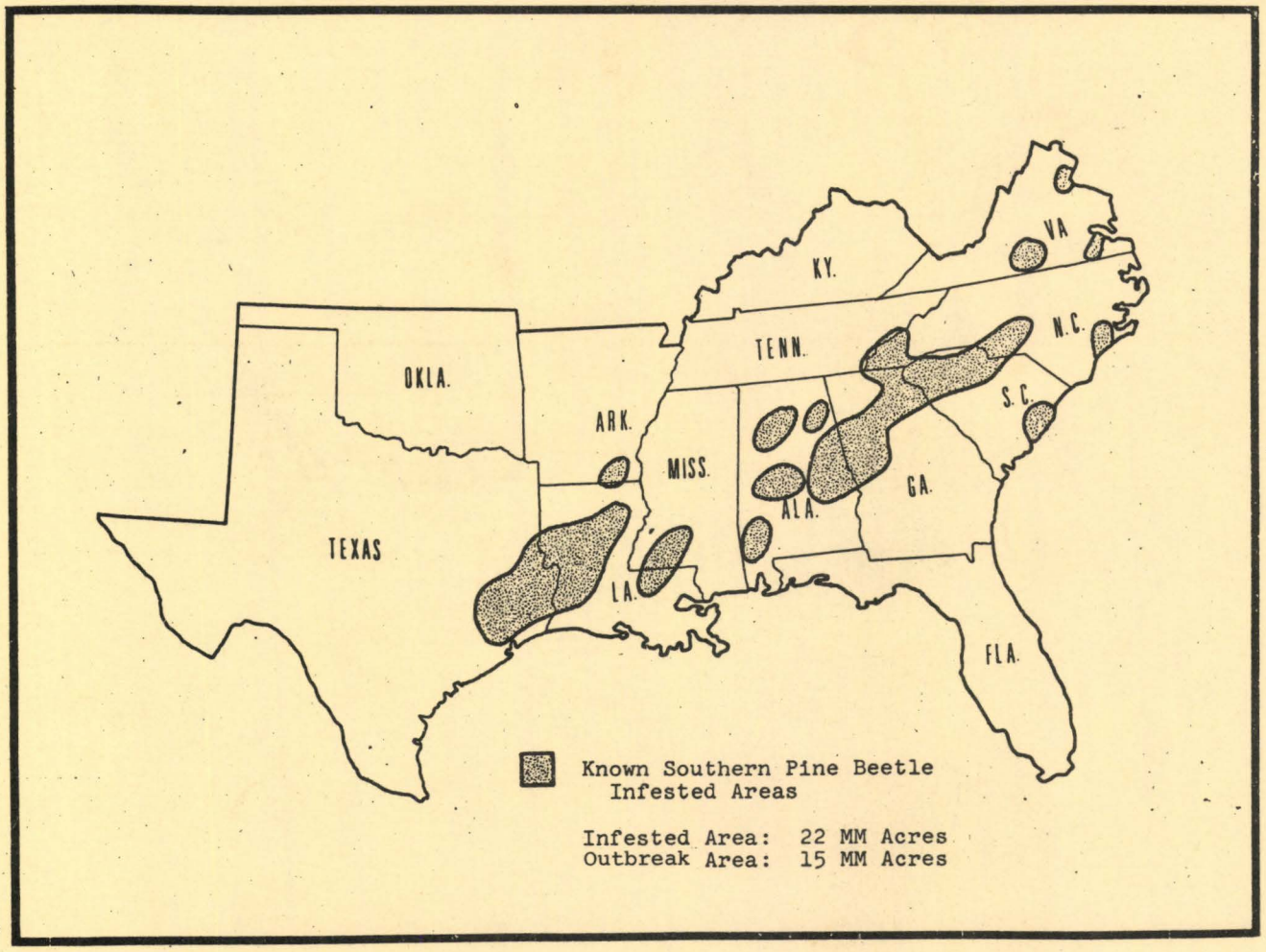

Figure 1. Southern pine beetle outbreak area in the Southeastern Area

Figure 2. White pitch tubes on the surface of a pine tree indicating southern pine beetle infestation

Figure 3. For positive identification of the southern pine beetle, a section of the inner bark should be examined for winding S-shaped galleries.

Guidelines for Cooperative Southern Pine Beetle Suppression

Suppression of the southern pine beetle should be accomplished using one or more of the three methods given below. The methods are listed in order of priority.

1. Removal of infested trees by commercial sale.

When infestations occur in trees of merchantable size and are accessible, all infested trees within a given spot should be removed by commercial sale. Because timing is critical, logging of the infested material should begin immediately. Contract time limits for removal of such material should reflect and insure removal as rapidly as possible.

Where adequate volume exists, a 40 to 70 foot buffer strip should be marked and cut adjacent to and ahead of the most recently infested trees in the spot. Experience has shown this practice to be effective in reducing the possibility of "breakouts". When only a small volume of infested material occurs in a spot and the infested trees are of merchantable size, it may be desirable to mark enough non-infested trees surrounding the spot to provide an operable cut.

The order of priority for removing beetle killed timber in a spot should be as follows:

a. Trees containing more fully developed broods. (Usually the red and fading trees.)

b. Trees containing lesser developed broods. (Usually the most recently infested green trees.)

c. Trees in the buffer zone.

Where the potential exists for Ips engraver buildups, slash should be lopped and scattered to permit drying, making it unfavorable for brood development.

To minimize the possibility of spreading beetle infestations, prompt processing of infested material at mills within the outbreak area is recommended. Slabs and infested bark should be destroyed by chipping or burning.

2. Piling and Burning.

Cutting infested trees, piling the stems and thoroughly burning the bark surface is also an economical and effective method for suppressing

unmerchantable or inaccessible southern pine beetle infestations. The entire bark surface of infested trees must be thoroughly burned to insure effective control. The order of priority for cutting, piling, and burning infested trees, particularly in large spots, is the same as paragraph (1) under removal of infested trees by commercial sale. Cutting a buffer strip is not recommended.

3. Chemical Control.

Chemical formulation recommended for southern pine beetle control is a 1/2 percent Lindane spray with #2 fuel oil as the carrier. This may be formulated from a 20 percent Lindane emulsifiable or oil concentrate at the rate of 11 pints of concentrate in enough fuel oil to make a total of 55 gallons of spray. (Ratio of one part 20% Lindane EC to 39 parts No. 2 diesel fuel.)

Cut, limb and buck all infested trees into workable lengths. Spray the infested bark surface to the point of run-off. A compressed air sprayer (3 gallon capacity or equivalent) is an ideal applicator. Infested logs will have to turned two or three times in order to insure complete treatment of infested bark. Also spray stumps and bark removed by woodpeckers. Low pressure power sprayers may be used to apply the spray material on large, accessible infestations.

The order of priority for cutting and spraying infested trees, particularly in large spots, is the same as paragraph (1) under removal of infested trees by commercial sale. Cutting a buffer strip is not recommended.

Never spray trees from which southern pine beetle brood has emerged. This allows natural enemies of the southern pine beetle occurring in these trees to complete their development. Trees withred needles from which beetle broods have emerged may be cut to prevent aerial spotters from mapping treated spots.

Instructions for minimizing the adverse effects of mixing, transporting and storing pesticides, applying pesticides, and disposing of pesticide containers and excess chemicals are outlined in section 8.3 of the Forest Service Health and Safety Code and FSM 5242.21. Detailed safety procedures should be outlined in the project suppression plan.

Treated areas should be revisited within two or three weeks after treatment to check for, and treatment of, additional infested trees.

More detailed information can be obtained by writing to the Forest Pest Management Group Field Offices listed below or the Atlanta Office:

FIELD OFFICES	FOR STATES OF:
Asheville Office John Rauschenberger Zone Supervisor U. S. Forest Service Post Office Box 5895 Asheville, North Carolina 28803 Phone: (704) 254-0961 Ext. 625	Florida Georgia Kentucky North Carolina South Carolina Tennessee Virginia
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